FLIGHT
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EDITORIAL COMMENT.

LAST week we referred to the lamentable fact that by now not a single world's record stands to the credit of Great Britain, and mentioned incidentally that there are in existence machines which could—and do almost weekly, as a matter of service routine—beat some of the existing records. Reference was also made to the fact that France encourages her constructors by offering premiums to the constructors of machines which put up a new world's record. Quite recently, on January 25, to be precise, we had another example of the manner in which the French constructor is at a great advantage compared with his British "opposite number." On that date the de Monge monoplane, with Bristol "Jupiter" engine (French-built, under licence, of course), piloted by Descamps, established new world's records over 100 kms., 200 kms. and 500 kms., by carrying a useful load of 500 kgs. at the following average speeds:—220·7 kms./h. (137¼ m.p.h.), 216·828 kms./h. (134¾ m.p.h.), and 213·053 kms./h. (132½ m.p.h.). These records have not yet been homologated by the Fédération Aéronautique Internationale, it is true, but there is no reason to doubt that they will be at the next meeting.

Three More World's Records for France

The three sets of record-breaking flights over the Villesauvage-La Marmogne course give one food for thought in more than one respect. To begin with, the machine used was the Koolhoven monoplane exhibited at the recent Paris Aero Show, which is now being built in France under licence by the de Monge-Buscaylet firm. The engine was, as already mentioned, a Bristol "Jupiter" manufactured in France under licence by the Gnome-Rhone Company. Last, but not least, the machine is designed as a two-seater fighter for the French air services, but has evidently been permitted to make an attempt at world's records before being taken over by the French authorities.

It is not without interest, and may prove rather instructive, to examine in some detail the three points raised. To begin with, knowing and appreciating the intense patriotism of the French nation, one can imagine that not without a struggle was the decision

reached to build a foreign aeroplane under licence in France. But the fact that this decision was reached is a striking proof of France's determination to acquire what she considers the best, be it French or foreign. The Koolhoven monoplane has put up some strikingly good performances during its development, after certain "teething troubles" had been overcome. The Breguet XIX was regarded as probably France's best two-seater fighter, but the Koolhoven monoplane with "Jupiter" engine was evidently regarded as being just sufficiently better to warrant obtaining the licence to build it in France. It has now gained three world's records for France. It might, of course, be argued that M. de Monge secured the French rights "off his own bat." We do not profess to have any knowledge of the conditions under which M. de Monge secured the rights of the Koolhoven F.K.31, but it seems fairly safe to assume that he would not have done so had he not been reasonably sure that the French Government would order the machine if it fulfilled certain conditions.

As regards the Bristol "Jupiter" engine, this can hardly be said to have been given excessive encouragement at home, although it is now being manufactured under licence in France, Italy and Czechoslovakia, showing in what regard it is held abroad.

Lastly, there is the fact that the machine was allowed to attempt the world's records before being taken over for service. Can anyone who is at all familiar with the methods of our officialdom imagine a similar permission being granted? If any manufacturer were to suggest such a thing (few would probably have the temerity), there is little doubt the Air Ministry would hold up its collective hands in horror and exclaim: "What, on a service machine? Help!" and bring in a stretcher. Now there may be various reasons given for this attitude. One can imagine, for instance, the excuse that were a service machine to be allowed to be slightly "faked" and to establish a world's record, its performance figures would be known to the whole world. Well, suppose they were, would that really matter? We think that, so far from being a disadvantage, it would be a distinct gain. Surely, nobody seriously believes that—even allowing that it is not already known—by keeping our performance figures secret we are giving the world at large the impression that we have something very startling up our sleeve? If, on the other hand, constructors were to be permitted to attempt world's records, and got them, would not that impress the world much more with the qualities of British aircraft, and thus increase British prestige abroad?

Another excuse for the official attitude which might be advanced is that new machines are urgently required, and cannot be spared for what apparently is regarded as such fooling. But are they? On the face of it, one might be inclined to accept this reason as a perfectly valid one, but in practice it does not appear to be so, and instances are not unknown of machines having been finished by the constructors and then having been kept literally lying about for weeks and even months before being taken over or flown. So that even the plea that machines are wanted in a hurry would not appear quite to provide a complete answer.

If the Air Ministry cannot persuade the Treasury of the vital importance of granting some assistance to constructors, at least it can, without having to consult anybody, grant manufacturers who wish to do so permission to attempt records with new types that appear suitable for the purpose. As we said last week, the position is becoming intolerable, and something must be done and done without delay. Surely, if nothing else could, this latest spectacle of France gathering in three new world's records with a Dutch-designed machine (whose designer Great Britain once had, but lost him), fitted with a British-designed engine, should stir somebody to a realisation of the British position and stimulate a spirit in the authorities that be to sit up and take notice.

Three New World's Records for France

FLYING a de Monge (Koolhoven) monoplane with Gnome-Rhone (Bristol) "Jupiter" engine over the Villesauvage (Etampes)-la Marmogne course, Descamps established three new world's records for speed with a useful load of 500 kgs. (1,100 lbs.) on January 25. These records, not yet homologated, were over distances of 100 kms., 200 kms. and 500 kms., and the average speeds were as follows: Over 100 kms., 220·7 kms./h. (137 m.p.h.); over 200 kms., 216·828 kms./h. (135 m.p.h.), and over 500 kms. 213·053 kms/h. (132¼ m.p.h.). The machine used was of the type F.K.31 exhibited at the recent Paris Aero Show, where it attracted very considerable attention both on account of its somewhat unusual design and because of the particularly ingenious way in which gun rings, camera, Very light pistol, etc., were mounted. The French rights have been secured by the Buscaylet—de Monge firm, and the Bristol "Jupiter" engine is, as is well known, being manufactured in France by the Gnome-Rhone company.

Some Recent Work at Aerodynamics Dept. of N.P.L.

THE paper on above subject, read before the R.Ae.Soc. by Maj. Southwell on January 22, gave an indication that during the last few years a more theoretical attitude towards the problems of aerodynamics has developed, and the lecturer put in a plea for greater freedom and leisure for individual workers in fundamental research. During the discussion several speakers agreed with the lecturer in the urgent need for extended fundamental research. Maj. A. R. Low called attention to the fact that whereas we in this country had only two or three men working on this kind of research, Germany had 15 to 20 men constantly engaged on scientific research. Mr. Handley Page expressed indebtedness for the work done by the National Physical Laboratory, but did not agree that the German scientists had laid the real foundations of aeronautical science. It is regretted that we have not the space to publish a full report on the paper and discussion, but those interested should obtain a copy of the Royal Aeronautical Society's Journal, in which both will be published.

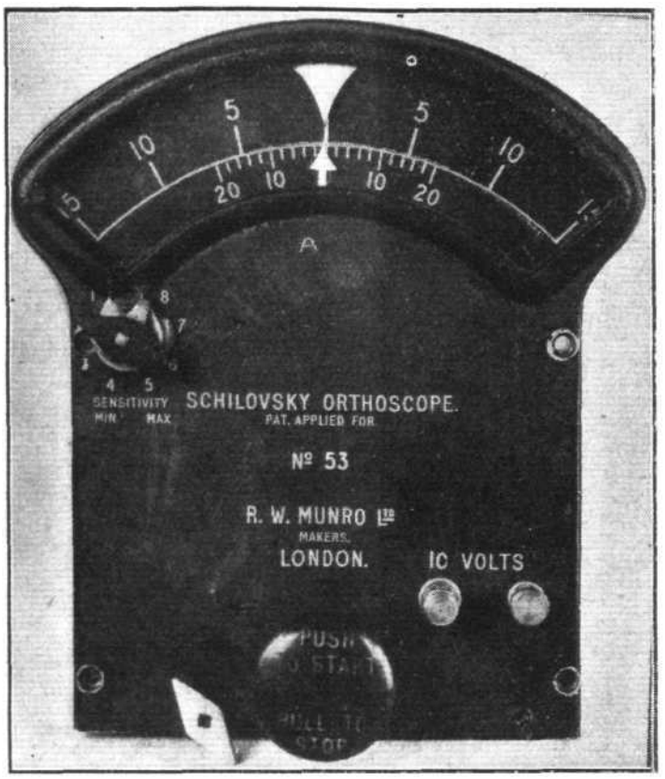
Shock-absorbing Flying Boat Hulls

ON January 23 Lieut. N. A. Olechnovitch read before the Institution of Aeronautical Engineers a short paper describing some experiments carried out by him in Russia during the War, dealing with the question of shock-absorbing flying boat hulls. In the first experiment the vee-bottom of the step was made separate from the main hull, and was hinged at its forward end, coil springs being interposed between the step bottom and the main bottom so that the step could move up and down, swinging on the forward hinges. This form of step successfully absorbed the short waves in a harbour, but the machine took longer to get on to her step, and porpoising was pronounced. In a second experiment the springs were replaced by an air cushion between the step and the hull bottom. This form was not very good, and a third experiment was undertaken in which the springing was in the form of squares of ash, bolted at their forward ends to the hull bottom, with which they formed an angle, and free to flex at the rear end. As the plank springs of one row slightly overlapped, with their free ends, the fixed forward ends of the row behind the effect was not unlike that of the scales of a fish. The time available before leaving for England was short, and Lieut. Olechnovitch only made six take-offs with this hull. It was, however, found to absorb the sharp blows of short waves, to stop porpoising, and to get on to its step after a normal run.

FLIGHT

A NEW GYROSCOPIC TURN INDICATOR

"As soon as I went into the clouds the compass got quite silly." This was a statement which one very frequently heard expressed in the earlier days of flying, and it was no unheard-of occurrence for a machine to emerge from a cloud in all sorts of unseemly attitudes. The explanation usually given was that, for some reason, the clouds acted on the compass, which began to swing, and ultimately might even spin right round. In our modern "enlightened" times we know, of course, that what happened was that the pilot, deprived of any landmarks on the earth, let his machine deviate slightly from its course, then over-corrected the turn and swung a little farther off on the opposite tack, coming back and again overshooting the mark, until the compass could no longer be relied upon to tell him what he was doing.

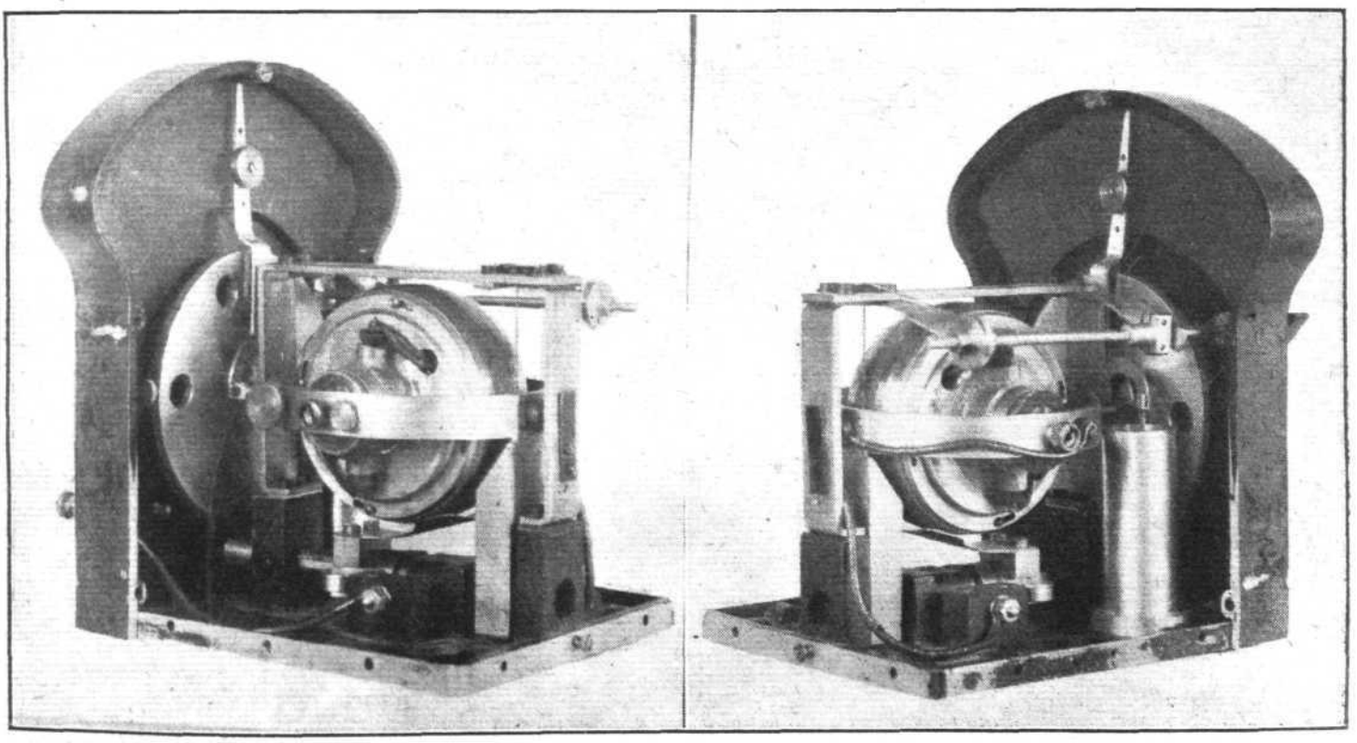


Front view of the Schilovsky Gyro Turn Indicator.

Since those days many attempts have been made to solve the problem of designing an instrument capable of indicating to the pilot that his machine is deviating from a straight course. The instrument here shown has been designed by Dr. Schilovsky, a Russian scientist who has specialised in the application of the gyroscope to a variety of engineering problems. Dr. Schilovsky calls his turn indicator an "Orthoscope," and its principle is very simply that of a two-framed gyroscope, the "ring" being fixed to the body of the aeroplane and the axis being at right angles to the line of flight. It is, of course, a well-known fact that when such a gyroscope is running and an effort made to swing it in the plane of its axis of rotation, it will tend to tilt at right angles to that plane. This principle has been very simply employed in the Schilovsky Orthoscope to actuate a pointer which indicates to the pilot whether or not he is maintaining a straight course. As a matter of fact, the Schilovsky turn indicator does more than this, for it actually indicates the *rate of turn* of the machine—in other words, the angular velocity. Moreover, the instrument is so designed that the pilot can adjust its sensitivity to suit his own requirements, the Orthoscope being adjustable within wide limits.

The orthoscope consists, fundamentally, of a small electro-motor, which also forms the gyroscope, rotating on a transverse axis, the ring being mounted on knife-edges pointing fore and aft. The motor is run off a 12-volt accumulator, and the consumption is but 0·7 ampère, or about the same as that of a wireless valve. An adjustable pendulum brings the gyroscope back to the neutral position, the adjustment of the pendulum length being effected by means of a small knob on the face of the instrument. Damping is introduced in the form of a small dashpot, visible in one of our photographs, and here again adjustment is provided in the form of a screw-down needle valve which increases or decreases the effective area of a small vent-hole. What with the two adjustments, the upper pointer can be made extra sensitive or less so at will. The lower pointer is a lateral inclinometer, in the form of a pendulum, also swinging on knife-edges, and is a circular disc eccentrically pivoted. If the machine makes a flat turn the upper pointer indicates the fact of the machine turning, while the lower shows that the bank is incorrect by swinging out. On a correctly banked turn the bottom pointer remains central.

The central knob actuates the switch which starts the motor, a pressure on it closing the circuit and at the same time dropping the gyroscope on to its knife-edges, off which it is lifted when the knob is pulled out. On switching on, the gyroscope is up to its running speed (about 1,000 r.p.m.) in something like five seconds. The instrument has a height of but 6½ ins. and weighs a few pounds only. For further information and demonstrations application should be made to Messrs. Bucknall and Riches, 8, Southampton Row, London, W.C. 1.



THE SCHILOVSKY GYROSCOPIC TURN INDICATOR: The small electric motor, running at about 1,000 to 1,200 r.p.m. only, is also the gyroscope.

WORLD'S RECORDS IN AVIATION

LAST week we referred to the fact that not a single world's record in aviation stood to the credit of Great Britain. We now publish a complete list of the world's records as standing on December 31, 1924, which we have compiled from the official bulletin issued by the F.I.A. From this list it will be seen that the U.S.A. figures very prominently, although a little while back France recaptured one or two records held by America.

CLASS A (BALLOONS)

(a) 600 *cubic m.* (21,192 *cubic ft.*)

Duration.—22 hrs. 34 mins.; France, G. Cormier, August 10-11, 1924.

Distance.—804·173 kms. (499·7 miles); France, G. Cormier.

(b) 601-900 *cubic m.* (—— 31,788 *cubic ft.*)

Duration.—23 hrs. 28 mins.; France, Jules Dubois, May 14-15, 1922.

Distance.—804·173 kms. (499·7 miles); France, G. Cormier.

(c) 901-1,200 *cubic m.* (—— 42,384 *cubic ft.*)

Duration.—23 hrs. 28 mins.; France, Jules Dubois.

Distance.—804.173 kms. (499.7 miles); France, G. Cormier.

(d) *All categories*

Duration.—87 hrs.; Germany, H. Kaulen, December 13-17, 1913.

Distance.—3,052·700 kms. (1896·9 miles); Germany, Berliner, February 8-10, 1914.

Altitude.—10,800 m. (35,434 ft.); Germany, Suring and Berson, June 30, 1901.

CLASS B (DIRIGIBLES)

Duration.—15 hrs.; Italy, Castracane and Castruccio, on P5, June 25, 1913.

Distance.—810 kms. (493·3 miles); Italy, Castracane and Castruccio, on P5, July 30, 1912.

Altitude.—3,080 m. (10,102 ft.); France, Cohen, on Conte, June 18, 1912.

Speed (rectilinear course).—64·800 k.p.h. (40·2 m.p.h.); Italy, Castracane and Castruccio, on P5, July 30, 1913.

CLASS C (POWER-DRIVEN AEROPLANES)

(a) *Records with re-fueling during flight*

Distance, Non-stop.—5,300 kms. (3,293·5 miles); U.S.A., Lieuts. Lowell Smith and J. P. Richter, on D.H. 4B, 400 h.p., "Liberty," at Rockwell Field (Col.), August 27-28, 1923.

Duration, Non-stop.—37 hrs. 15 mins. 14⅘ secs., *as above.*

Speed.—During the above flight the following speed records were also made:—

2,500 kms. (1,553·4 miles): 142·780 k.p.h. (88·7 m.p.h.).
3,000 kms. (1,864·2 miles): 141·870 k.p.h. (88·1 m.p.h.).
3,500 kms. (2,174·9 miles): 142·170 k.p.h. (88·3 m.p.h.).
4,000 kms. (2,485·6 miles): 142 k.p.h. (88·2 m.p.h.).
4,500 kms. (2,796·3 miles): 142·360 k.p.h. (88·4 m.p.h.).
5,000 kms. (3,107 miles): 142·530 k.p.h. (88·5 m.p.h.).

(b) *Records without re-fueling.*

Distance, Non-stop.—4,050 kms. (2,516·6 miles); U.S.A., Lieuts. Oakley, J. Kelly and McReady, on U.S. Army T2, 375 h.p. "Liberty," April 16-17, 1923.

Duration, Non-stop.—37 hrs. 59 mins. 10 secs.; France, Coupet and Drouhin, on Farman, 450 h.p. Farman, July 16-17, 1924.

Altitude.—12,066 m. (39,576·5 ft.); France, Callizo on Gourdou-Lesseure mono., 300 h.p. Hispano-Suiza (Supercharger), at Villacoublay, October 10, 1924.

Speed (Ground Level).—448·170 k.p.h. (278·4 m.p.h.); France, Adj. Bonnet, on Ferbois mono., 550 h.p. Hispano-Suiza, at Istres, December 11, 1924.

100 kms. (62·14 miles):—392·379 k.p.h. (243·8 m.p.h.); U.S.A., Lieut. A. J. Williams, on Curtiss R.2C.1, 460 h.p. Curtiss, at St. Louis, October 6, 1923.

200 kms. (124·2 miles):—392·154 k.p.h. (243·7 m.p.h.); *as above.*

500 kms. (310·7 miles):—306·696 k.p.h. (190·6 m.p.h.); France, Sadi Lecointe, on Nieuport-Delage, 500 h.p. Hispano-Suiza, at Istres, June 23, 1924.

1,000 kms. (621·4 miles):—205 k.p.h. (127·3 m.p.h.); U.S.A., Lieuts. Harris and R. L. Lockwood, on D.H. 4L, 400 h.p. "Liberty" at Dayton, March 29, 1923.

1,500 kms. (932·1 miles):—184·030 k.p.h. (114·3 m.p.h.) U.S.A., Lieut. H. R. Harris, on D.H. 4L, 375 h.p. "Liberty," at Dayton, April 17, 1923.

2,000 kms. (1,242·8 miles): 183·830 k.p.h. (114·2 m.p.h.); *as above.*

2,500 kms. (1,553·5 miles):—115·600 k.p.h. (71·8 m.p.h.); U.S.A., Lieuts. Oakley, J. Kelly and McReady, on U.S. Army T-2, 375 h.p. "Liberty," at Dayton, April 16-17, 1923.

3,000 kms. (1,864·2 miles):—115·270 k.p.h. (71·6 m.p.h.); *as above.*

4,000 kms. (2,485·6 miles):—113·930 k.p.h. (70·8 m.p.h.); *as above.*

Records with 250 *kgs.* (551·2 *lbs.*) *useful load*

Duration.—9 hrs. 11 mins. 53⅘ secs.; U.S.A., Lieut. H. R. Harris, on Douglas DT-2, 400 h.p. "Liberty," at Dayton, on June 28, 1924.

Distance.—950 kms. (590·3 miles); *as above.*

Altitude.—8,980 m. (2,945·4 ft.); U.S.A., Lieut. H. R. Harris, on T.P.1, 400 h.p. "Liberty," at Dayton, on March 27, 1924.

Speed.—100 kms. (62·14 miles):—226·272 k.p.h. (140·6 m.p.h.); Czecho-Slovakia, Serg. F. Lekhy, on A-12, 266 h.p. Maybach, at Prague, on September 7, 1924.

200 kms. (124·2 miles):—202·988 k.p.h. (126·1 m.p.h.); *as above.*

500 kms. (310·7 miles):—196·940 k.p.h. (122·3 m.p.h.); France, Adj. Foiny, on Potez 15-A2, 400 h.p. Lorraine, at Villesauvage, on November 29, 1924.

Records with 500 *kgs.* (1,102·5 *lbs.*) *useful load*

Duration.—9 hrs. 11 mins. 53¼ secs.; U.S.A., Lieut. H. R. Harris, on Douglas DT-2, 400 h.p. "Liberty," at Dayton, on June 28, 1924.

Distance.—950 kms. (590·3 miles); *as above.*

Altitude.—8,578 m. (28,135·8 ft.); U.S.A., Lieut. H. R. Harris, on T-P1, 400 h.p. "Liberty," at Dayton, on May 21, 1924.

Speed.—100 kms. (62·14 miles):—202·133 k.p.h. (125·6 m.p.h.); Czecho-Slovakia, Capt. J. Kalla, on A-12, 260 h.p. Maybach, at Prague, September 7, 1924.

200 kms. (124·2 miles):—189·219 k.p.h. (117·5 m.p.h.); *as above.* Serg. B. Kaspar.

500 kms. (310·7 miles):—120·550 k.p.h. (74·9 m.p.h.); U.S.A., Capt. Louis G. Meister, on Martin Bomber (2) 400 h.p. "Liberty," at Dayton, June 28, 1924.

Records with 1,000 *kgs.* (2,205 *lbs.*) *useful load*

Duration.—2 hrs. 13 mins. 49⅘ secs.; U.S.A., Lieut. J. A. McReady, on Curtiss-Martin NBS-1, (2) 400 h.p. "Liberty," at Dayton, on October 2, 1924.

Altitude.—5,751 m. (18,863 ft.); France, Lucien Coupet, on Farman Goliath, (1) 600 h.p. Farman, at Toussus, May 6, 1924.

Records with 1,500 *kgs.* (3,307·5 *lbs.*) *useful load*

Duration.—2 hrs. 13 mins. 49⅘ secs.; U.S.A., Lieut. J. A. McReady, on Curtiss-Martin NBS-1, (2) 400 h.p. "Liberty," at Dayton, October 2, 1924.

Altitude.—4,953 m. (16,245·8 ft.); *as above.*

Records with 2,000 *kgs.* (4,410 *lbs.*) *useful load*

Duration.—1 hr. 47 mins. 10⅗ secs.; U.S.A., Lieut. H. R. Harris, on Barling Bomber, (6) 400 h.p. "Liberty," at Dayton, October 3, 1924.

Altitude.—4,475 m. (14,678 ft.); France, Lucien Bossoutrot, on Farman Goliath, (1) 600 h.p. Farman, at Toussus, May 8, 1924.

Records with 3,000 *kgs.* (6,615 *lbs.*) *useful load*

Duration.—1 hr. 47 m. 10⅘ secs.; U.S.A., Lieut. H. R. Harris, on Barling Bomber, (6) 400 h.p. "Liberty," at Dayton, October 3, 1923.

Altitude.—1,942 m. (6,369·7 ft.); France, Lucien Bossoutrot, on Farman Goliath, (1) 600 h.p. Farman, at Toussus, May 17, 1924.

Records with 4,000 *kgs.* (8,820 *lbs.*) *useful load*

Duration.—1 hr. 47 mins. 10⅗ secs.; U.S.A., Lieut. H. R. Harris, on Barling Bomber, (6) 400 h.p. "Liberty," at Dayton, Oct. 3, 1924.

Altitude.—1,363 m. (4,470 ft.); *as above.*

CLASS Cbis (SEAPLANES)

(b) *Records without re-fueling*

Duration.—14 hrs. 53 mins. 44⅗ secs.; U.S.A., Lieuts. F. W. Wead and J. D. Price, on Navy CS-2, 585 h.p. Wright, at Washington, July 11-12, 1924.

Distance.—1,600 kms. (994·2 miles); *as above.*

Altitude.—8,980 m. (29,454·4 ft.); France, Sadi Lecointe, on Nieuport-Delage, 300 h.p. Hispano-Suiza, at Meulan, March 11, 1924.

Speed (Ground level).—302·684 k.p.h. (188 m.p.h.); U.S.A., Lieut. Cuddihy, on Navy Curtiss C.R., 450 h.p. Curtiss D-12, at Baltimore, October 25, 1924.

100 kms. (62·14 miles):—286·866 k.p.h. (178·2 m.p.h.); U.S.A., Lieut. R. A. Ofstie, on Navy Curtiss C-R, 450 h.p. Curtiss D-12, at Baltimore, October 25, 1924.

200 kms. (124·2 miles) :—286·866 k.p.h. (178·2 m.p.h.) ; *as above.*

500 kms. (310·7 miles) :—259·328 k.p.h. (161·1 m.p.h.) ; *as above.*

1,000 kms. (621·4 miles) :—163·578 k.p.h. (101·6 m.p.h.) ; U.S.A., Lieuts. V. E. Bertrandias and G. C. McDonald, on Loening Air Yacht, 400 h.p. " Liberty," at Hampton Roads, November 7, 1924.

1,500 kms. (932·1 miles) :—119·360 k.p.h. (74·1 m.p.h.) ; U.S.A., Lieuts. F. W. Wead and J. D. Price, on Navy C.S.-2, 585 h.p. Wright, at Washington, June 23, 1924.

Records with 250 *kgs.* (551·2 *lbs.*) *useful load*

Duration.—10 hrs. 23 mins. 58 secs. ; U.S.A., Lieut. Stanley, on F.-5-L flying-boat, (2) 400 h.p. " Liberty," at San Diego, June 6, 1923.

Distance.—1,102 kms. (684·7 miles) ; Denmark, Karl Lesch, on Rohrbach (metal), (2) 360 h.p. Rolls-Royce, at Circuit du Sund, October 24, 1924.

Altitude.—5,691 m. (18,666·4 ft.) ; Sweden, Lieut. Berndt Krook, on Heinkel S.1, 360 h.p. Rolls-Royce, at Stockholm, August 18, 1924.

Speed, 100 kms. (62·14 miles).—159·151 k.p.h. (98·9 m.p.h.) ; Denmark, Karl Lesch, on Rohrbach (metal), (2) 360 h.p. Rolls-Royce, at Circuit du Sund, October 24, 1924.

200 kms. (124·2 miles).—158·834 k.p.h. (98·6 m.p.h.) ; *as above.*

500 kms. (310·7 miles).—156·699 k.p.h. (97·3 m.p.h.) ; *as above.*

1000 kms. (621·4 miles).—152·335 k.p.h. (94.6 m.p.h.) ; *as above.*

Records with 500 *kgs.* (1,102·5 *lbs.*) *useful load*

Duration.—7 hrs. 35 mins. 54 secs. ; U.S.A., Lieut. H. E. Holland, on F-5-L. flying-boat, (2) 400 h.p. " Liberty," at San Diego, June 6, 1923.

Distance.—750 kms. (466 miles) ; *as above.*

Altitude.—4,755 m. (15,596·4 ft.) ; France, J. F. Laporte, on F.B.A. flying-boat, 300 h.p. Hispano-Suiza, at Argenteuil, August 27, 1924.

Speed, 100 kms. (62·14 miles).—143·118 k.p.h. (88·9 m.p.h.) ; France, E. Paumier, on Schreck-F.B.A., 350 h.p. Hispano-Suiza, at Argenteuil, November 30, 1924.

200 kms. (124·2 miles).—142·630 k.p.h. (88·6 m.p.h.) ; *as above.*

Records with 1,000 *kgs.* (2,205 *lbs.*) *useful load*

Duration.—5 hrs. 28 mins. 43 secs. ; U.S.A., Lieut. Geo. R. Henderson, on Navy P N 7-1, (2) 535 h.p. Wright T-2, at Baltimore, October 25, 1924.

Distance.—400 kms. (248·5 miles) ; *as above.*

Altitude.—3,744 m. (12,280 ft.) ; France, Buri, on Blanchard, (2) 300 h.p. Hispano-Suiza, at St. Raphael, June 11, 1924.

Speed, 100 kms. (62·14 miles).—126·345 k.p.h. (78·5 m.p.h.) ; U.S.A., Lieut. Geo. R. Henderson, on Navy P N 7-1, (2) 535 h.p. Wright T-2, at Baltimore, October 25, 1924.

200 kms. (124·2 miles).—126·345 k.p.h. (78·5 m.p.h.) ; *as above.*

Records with 1,500 *kgs.* (3,307·5 *lbs.*) *useful load*

Duration.—2 hrs. 18 mins. ; U.S.A., Lieut. H. T. Stanley, on F-5-L flying-boat, (2) 400 h.p. " Liberty," at San Diego, June 7, 1923.

Distance.—100 kms. (62·14 miles) ; U.S.A., Lieut. O. B. Hardison, on Navy P N 7-1, (2) 535 h.p. Wright T-2, at Baltimore, October 25, 1924.

Altitude.—2,130 m. (6,986·4 ft.) ; France, Lieut. Pelletier d'Oisy, on Blanchard, (2) 300 h.p. Hispano-Suiza, at St. Raphael, April 17, 1924.

Speed.—100 kms. (62·14 miles) :—100·100 k.p.h.) (62.2 m.p h.) ; U.S.A., Lieut. O. B. Hardison, on Navy P N 7-1, (2) 535 h.p. Wright T-2, at Baltimore, October 25, 1924.

Records with 2,000 *kgs.* (4,410 *lbs.*) *useful load*

Duration.—1 hr. 49 mins. $11\frac{6}{10}$ secs. ; U.S.A., Lieut. O. B. Hardison, on Navy P N 7-1, (2) 535 h.p. Wright T-2, at Baltimore, October 25, 1924.

Distance.—100 kms. (62·14 miles) ; *as above.*

Altitude.—1,489 m. (4,884 ft.) ; U.S.A., Lieut. H. E. Holland, on F-5-L flying-boat, (2) 400 h.p. " Liberty," at San Diego, June 7, 1923.

Speed.—100 kms. (62·14 miles) :—110·100 k.p.h. (68·4 m.p.h.) ; U.S.A., Lieut. O. B. Hardison, on Navy P N 7-1, (2) 535 h .p. Wright T-2, at Baltimore, October 25, 1924.

CLASS D (GLIDERS)

Duration.—8 hrs. 4 mins. $50\frac{3}{5}$ secs. ; France, A. Maneyrol, on Peyret, at Vauville, January 29, 1923.

Distance.—8·100 kms. (5 miles) ; France, Lieut. Thoret, on Bardin, at Vauville, August 26, 1923.

Altitude.—545 m. (1,787·6 ft.) ; France, Descamps, on Dewoitine, at Biskra, February 7, 1923.

CLASS G (HELICOPTERS)

Distance, in straight line.—736 m. (2,414 ft.) ; France, Pescara, on twin-screw Pescara, 180 h.p. Hispano-Suiza, at Issy, April 18, 1924.

Altitude, with 100 kgs. (220·5 lbs.).—1 m. (3·28 ft.) ; France, Oehmichen, on Oehmichen, 180 h.p. Rhone, at Arbouans, September 14, 1924.

Ditto, with 200 kgs. (441 lbs.).—1 m. (3·28 ft.) ; *as above.*

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THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS

THE SCHNEIDER INTERNATIONAL SEAPLANE RACE, 1925

THE Schneider International Seaplane Race will be held this year in America. The date of the contest will be announced on or before March 1, 1925. British entries, together with the entry fee of £10 and the deposit of £100, must be received by the Royal Aero Club not later than Monday, March 23, 1925.

The Regulations for 1925 are as follows :—

General Conditions for 1925

Article 1.—Clubs entering machines must deposit, in addition to the entry fee laid down in the General Regulations, a sum of 5,000 francs for each machine, as a guarantee of its being present.

This sum will be returned in respect of each machine that is present at the contest.

Navigability and Watertightness Test

Article 2.—This eliminating test will begin with a navigability test and be followed by a watertightness test. These two tests are intended to establish the seaworthiness of the machine.

Article 3.—Each machine must complete a course of from 5 to 10 nautical miles over the sea, or in a creek, gulf, estuary or bay, as decided by the Commissaires Sportifs.

For this test the competitor must taxi over the starting line, then rise and continue the course, during which he must taxi the machine over two distances of half a nautical mile at a minimum speed of 12 knots, the limits of each of these distances being indicated by two buoys.

The remainder of the course will be covered in flight.

The competitor must, however, alight again before completing the course and taxi over the finishing line.

The Commissaires Sportifs may allow a competitor who has been unsuccessful in this test to make a second and final attempt.

Article 4.—After having taxied over the finishing line, the machine must be moored immediately to a buoy allotted beforehand, where it must remain afloat for six hours without anyone on board

Any machine leaving its mooring during this period will be disqualified.

Article 5.—No repairs will be allowed during the navigability and watertightness tests. Except for changing the propeller, which is allowed, the machine must not undergo any modification between the above tests and the speed contest. It will be stamped to ensure this.

Speed Contest

The Jacques Schneider Cup in 1925 will be contested over a distance of about 200 nautical miles (the course shall not be increased or diminished by more than 10 per cent.).

The closed circuit will be at least 5 nautical miles.

Alightings and repairs are allowed during the contest.

In the event of unfavourable weather the Commissaires Sportifs may postpone the contest as often as they think fit.

GORDON BENNETT BALLOON RACE, 1925

BRITISH entries for the Gordon Bennett Balloon Race, 1925, together with the entry fee, £10, must be received by the Royal Aero Club not later than Monday, March 23, 1925. The race will be held at Brussels on June 7, 1925.

Offices : THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W.1.
H. E. PERRIN, Secretary

GREAT BRITAIN'S LARGEST AIRCRAFT FACTORY

Impressions of a Visit to the Fairey Works

"LET'S see, there isn't a war on at present, is there?" Some such thought comes to mind on entering the works of the Fairey Aviation Co., Ltd., at Hayes, Middlesex, for one sees machines in large numbers and in various stages of completion, from the skeleton fuselage of a "Flycatcher" to the finished machine being packed for transport, and round about the erecting shop the different components, be they wood or metal, are being produced at a rate which seems strangely unusual for a peace-time factory. Then one remembers that this is the largest aircraft factory in Great Britain at the present time, at any rate in the matter of output and number of employés, if not in superficial area.

The growth of the Fairey Aviation Company since its formation in 1915 has not been meteoric, as were those of several firms during the War, but it has been steady and sound, this fact in itself is not sufficient to account for the success of the firm, and one must look deeper in order to get at the "secret." Recently we had the good fortune to spend a day at the Fairey works at Hayes, and, moreover, we had the best possible guide in that Mr. Fairey himself, in spite of the pressure on his time, took us around and showed us everything from the highly systematised filing and card-indexing of aircraft drawings and parts to the finished machines ready for dispatch, and from the very interesting experimental work of various sorts to the production of Fairey-Reed all-metal airscrews. After the visit one can begin to understand, in some measure at any rate, how and why the Fairey firm has attained its present prominent position. Although it is not possible to describe all we saw, much of the work being of a confidential nature, we hope to give, in the following notes, a

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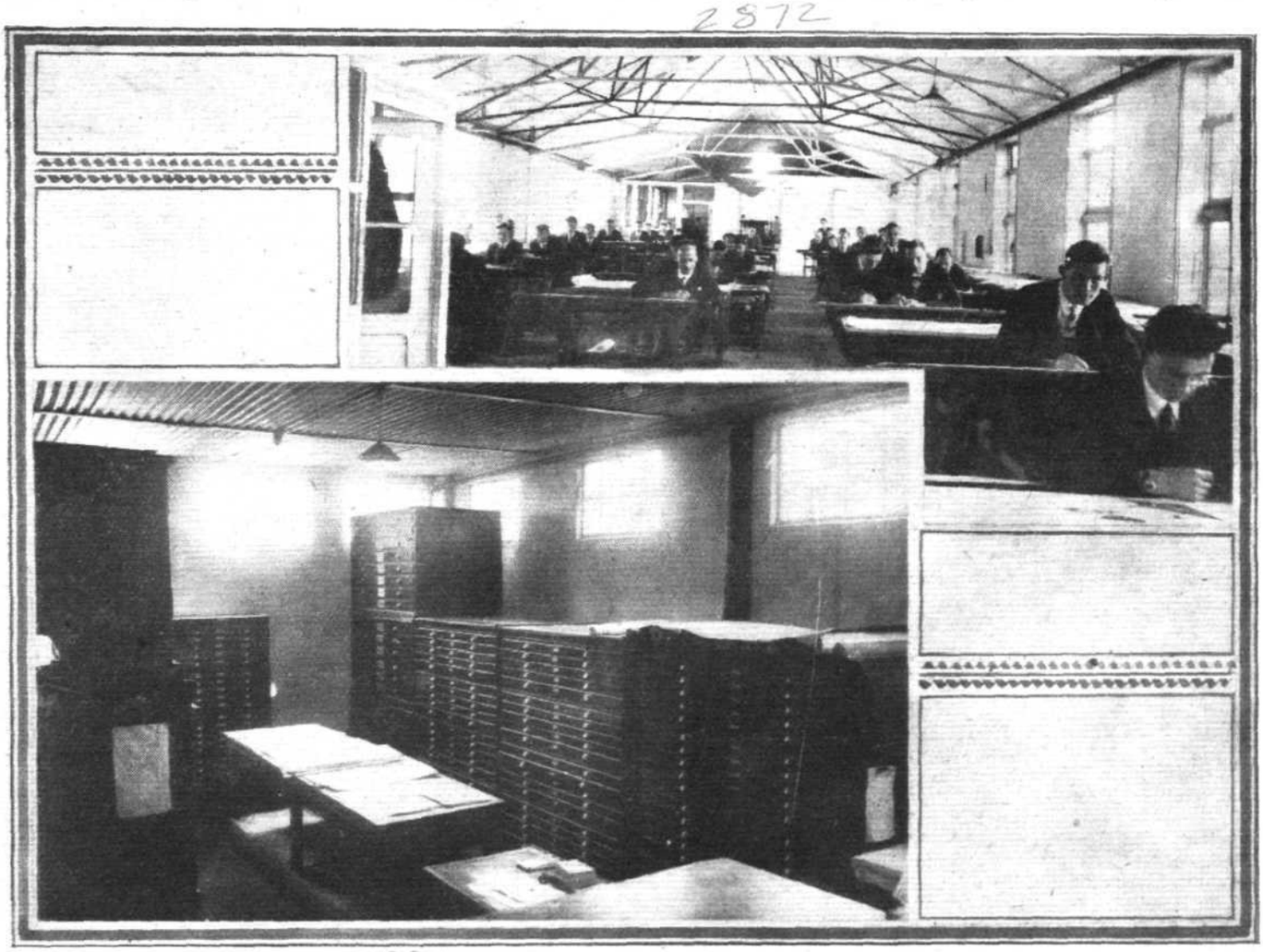

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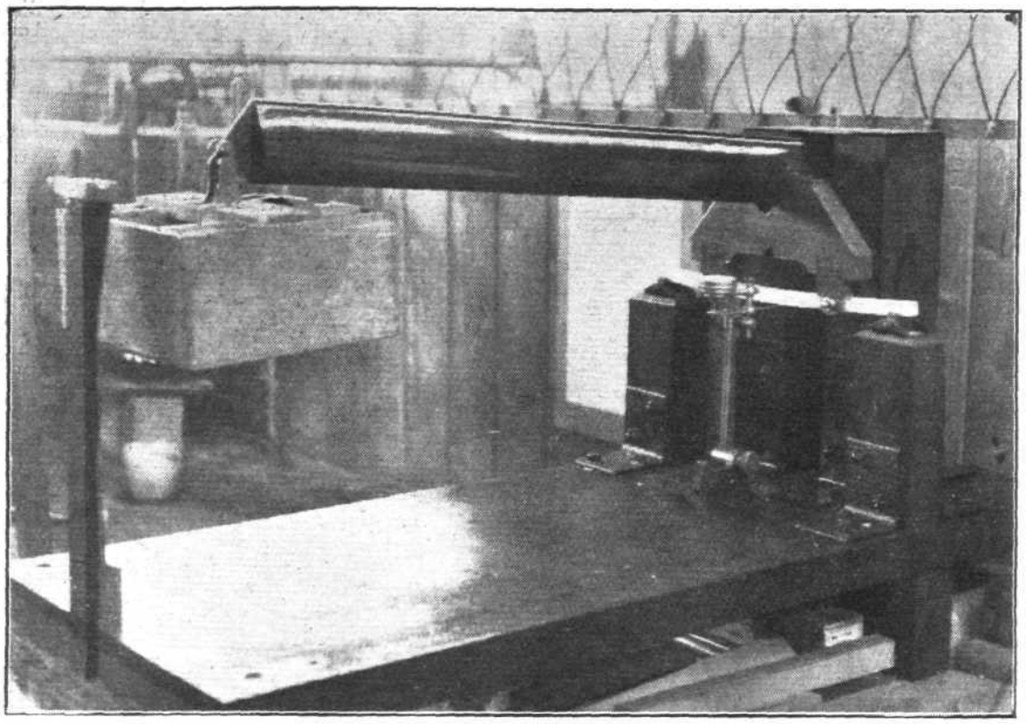
AT THE FAIREY WORKS: Above, a portion of the drawing office. The door on the left leads to the technical department where stress calculations, etc., are carried out. Below, the vault in which are stored all the master tracings. This vault is locked by the chief draughtsman every night, and is practically fireproof, so that there is small risk of the valuable tracings being destroyed.

and where large War-time firms sprang up like mushrooms, almost overnight, the Fairey Aviation Company has been content to develop slowly and gradually, but surely. The result has, not unnaturally, been that when the cessation of hostilities brought about the closing of so many factories, the Fairey works continued to produce, and today, after six years of peace, they have attained a premier position.

The question that naturally comes to mind is: How has this position been reached? First and foremost, the Fairey Aviation Company is at a great advantage in having a technical board of directors, Mr. C. R. Fairey himself combining the duties of technical director and managing director, and his co-directors being men with technical as well as commercial experience. That under the conditions good aircraft should be produced is, of course, not to be wondered at, but sufficient indication of the methods of work to enable our readers to form an idea of some of the latest developments.

In the first place, the Fairey Aviation Company has realised that to ensure satisfaction all around it is necessary that the closest possible co-operation between the manufacturing and user's side should exist. The user, in this case, is, of course, mainly the services, and as soon as a particular type of Fairey machine is placed on the production list a very complete illustrated schedule is issued. This takes the form of a loose-leaf book giving illustrations, in the form of perspective sketches, of every component of the machine. Each component is numbered, and when replacements are required it is only necessary to quote the number of the particular part. There is thus no ambiguity, and mistakes are practically impossible. In the case of squadrons or air stations the stores



Testing samples of wing spars: A small piece is tested to destruction and a record kept of its characteristics. Thus any spar of any machine can be looked up at a future date, and incidentally the way in which spars with varying characteristics behave under different conditions in actual use can be compared.

numbers are the same as those in the schedule, and tally with the numbers of the parts in the Fairey stores, so that whether the order for replacements goes to the squadron store or to the makers, the number to be quoted is always the same.

In this connection it should be mentioned that each machine is divided into sections, each section comprising a large unit such as fuselage, wings, undercarriage, &c. Each section is allotted a letter, and at the Fairey works two separate, but cross-indexed, schedules are kept (these are entirely separate from the book-form schedule), the one giving detailed information relating to the sizes and materials of components, and the other the quantities, or "No. off," for each machine. Whenever an alteration is made it is at once recorded in the various schedules, and a sheet with the alterations is sent to all the squadrons or air stations using that particular machine, for insertion in the loose-leaf schedule.

Having referred briefly to the Fairey system of schedules and indexing,, as regards production types of machines, it may be of interest to mention that recently a considerable extension of the works has taken place, and that the experimental department is now entirely separate from the production department, with separate staff and workers. Of much of the experimental work undertaken nothing may be said, partly because some of it is on behalf of the Air Ministry, or, at any rate, connected with machines for the service, and partly because certain research and experiments relate to future developments which at the present moment the firm desires to keep secret. It is, however, possible to refer briefly to a very extensive series of tests carried out on the characteristics of timbers, mainly on spruce. When the spruce planks for wing spars are sawn from the log, large specimens are tested to destruction, and in this manner the quality of a particular log becomes apparent

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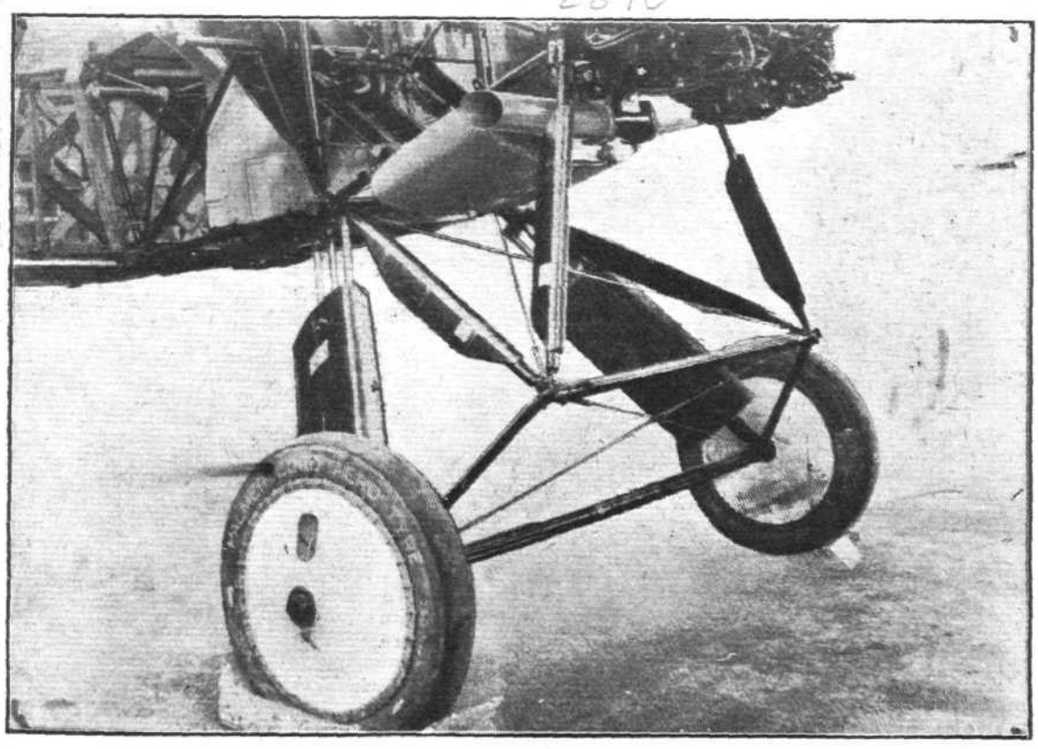

The Fairey oleo-pneumatic undercarriage as fitted on the "Fawn," "Flycatcher," etc. The travel of the wheels is exceptionally long, and the machines can be pancaked from a considerable height without damage.

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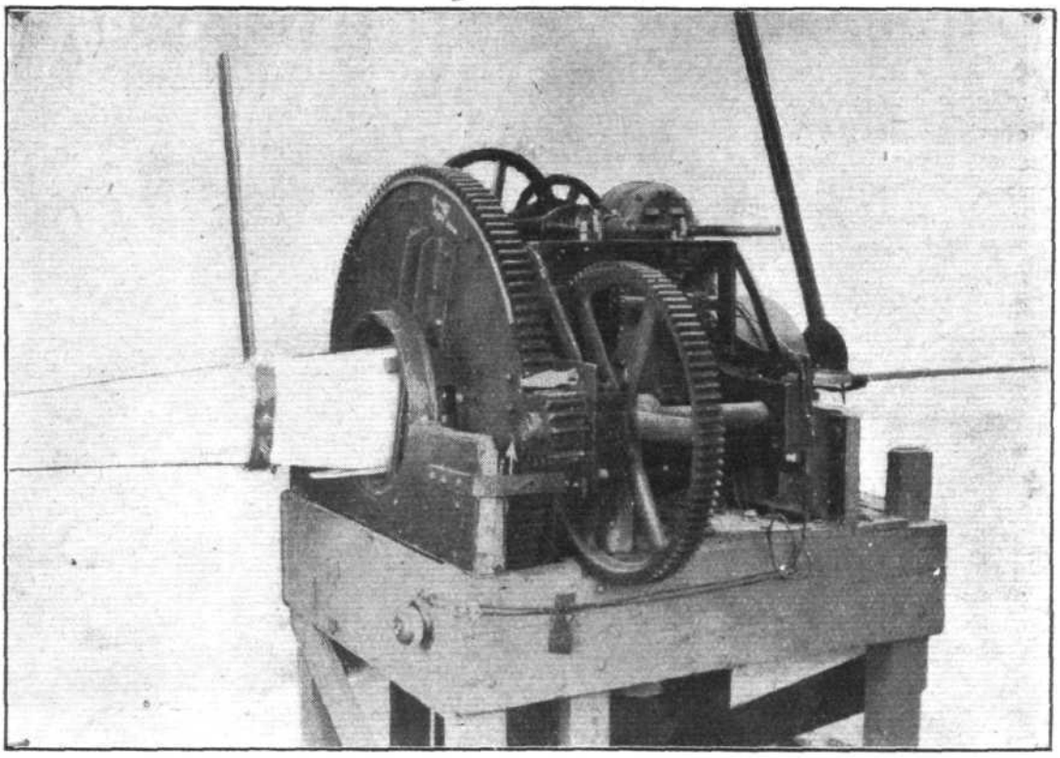
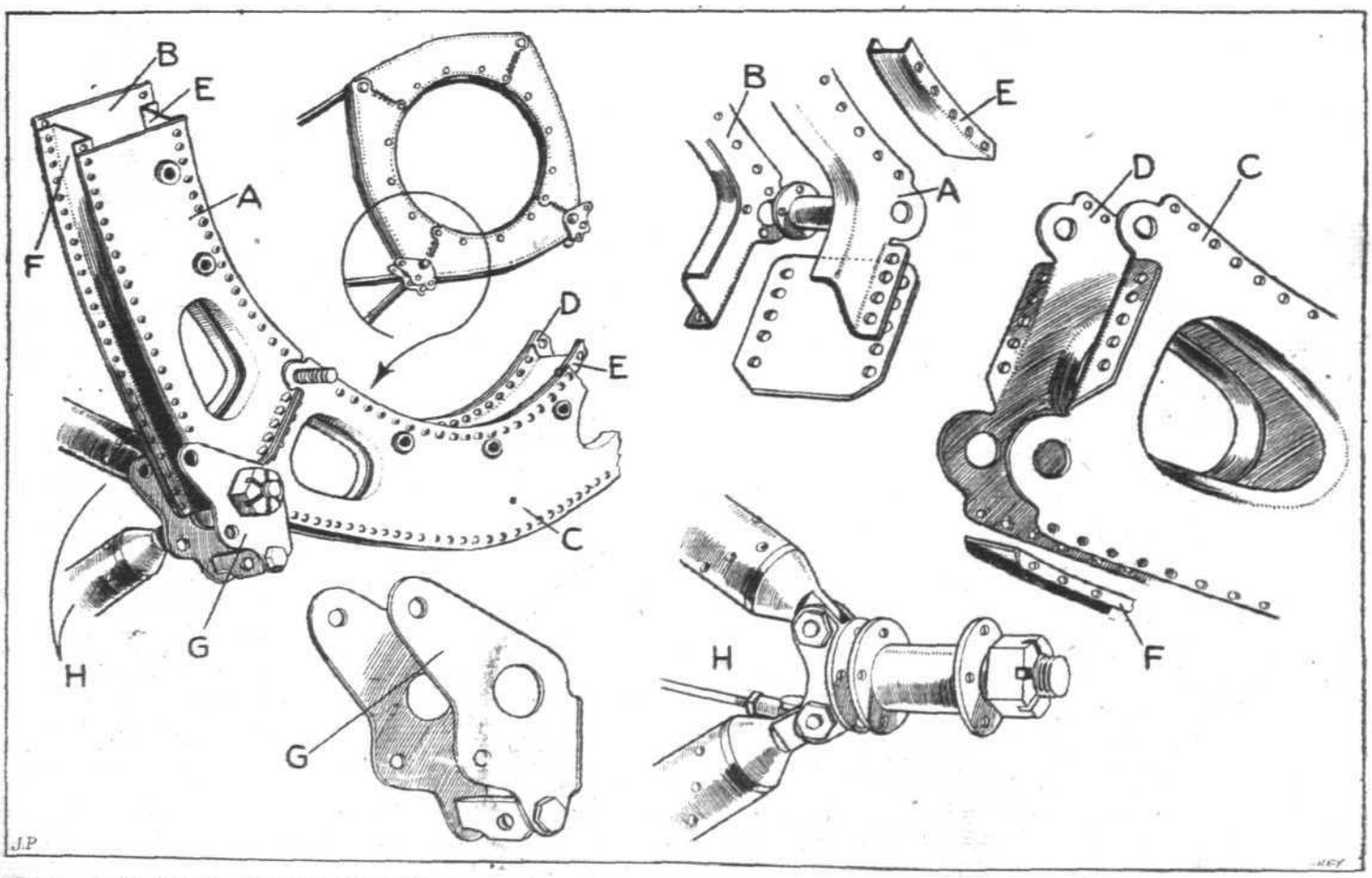


Making Fairey-Reed duralumin airscrews. This machine twists the duralumin "plank," and in the photograph the two blades are twisted at right angles to one another.

before much work has been expended upon it. This naturally effects a not inconsiderable saving. Planks which the tests have indicated to be sound (apart from any defects that may be discovered by inspection) are then allowed to proceed to the next stage in manufacture, and a small specimen of each spar is taken and subjected to destruction tests. One of our photographs shows the testing machine, with a small specimen under test. A record is kept of the characteristics of the test piece, such as its breaking strength, modulus of elasticity, moisture content, weight per cubic foot, etc. In this connection it is interesting to note that as a result of more than 3,000 such tests, the Fairey Aviation Company has been able to discover what appears to be a consistent rule. If the moisture content and specific weight of a piece of spruce are known, its other characteristics can be calculated We had the privilege of being shown a comparative table of characteristics of a number of test pieces, giving both the experimentally-determined and the calculated values, and the agreement was little short of astonishing. The verification of this law is, of course, of great practical value, quite apart from the direct use of testing samples of each wing spar so that its recorded characteristics can always be looked up at any future date. In addition to wood-testing machines, the Fairey experimental shops are also equipped with

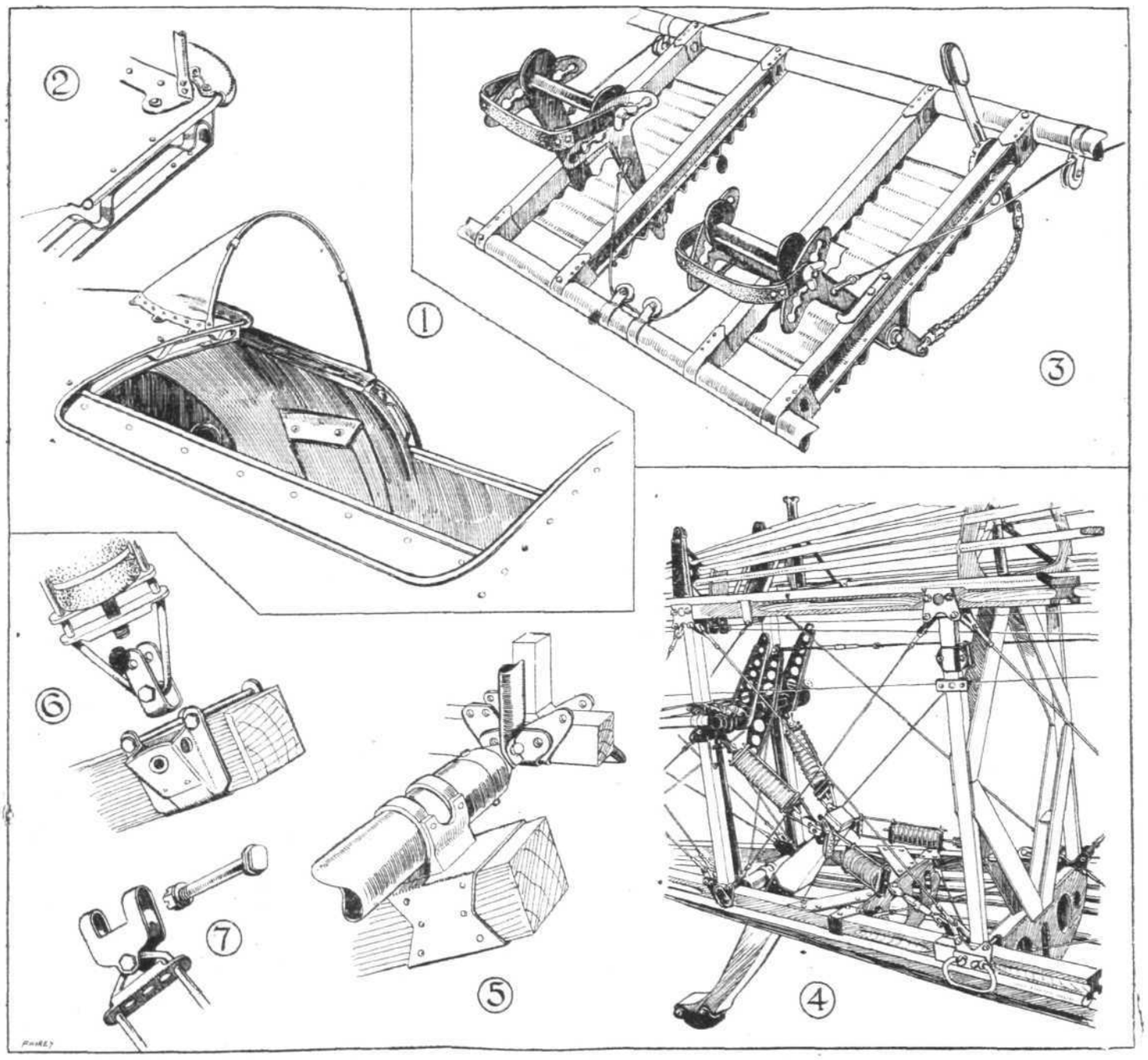


THE BUILT-UP STEEL-PLATE ENGINE MOUNTING OF THE FAIREY "FLYCATCHER": The engine plate is in four sections, the details of the construction and method of joining being shown in the sketches.

Brinell hardness testers, scleroscopes, etc., for the testing of metals, and the same care is taken here as in the case of the wood components. Add to this the fact that the head of the Fairey Inspection Department (which is, of course, entirely separate from and additional to the A.I.D.) is responsible to the directors of the firm only, and it will be realised that everything possible is done to ensure perfection of materials and workmanship.

On the subject of Fairey experiments in metal construction a whole article could be written, but this, unfortunately, is one of the subjects on which one has to be reticent. Certain highly interesting experiments have recently been carried out with cheap forms of metal construction, but all that can be said concerning these is that they have definitely shown the possibility of doing metal work with semi-skilled, or even unskilled, labour. Whether the system has any chance of being "approved" in official circles is, perhaps, another matter. It is by now well known that the Fairey company has produced metal wings of the usual type, *i.e.*, crinkled strip construction, and these have proved quite satisfactory after prolonged service, but it is to an entirely different system of metal construction that we refer, and the experiments with which were undertaken by the firm as a purely private piece of research.

While on the subject of metal construction reference should be made to the Fairey-Reed Duralumin airscrews. On the occasion of our visit we had an opportunity of seeing these propellers manufactured. It was a somewhat astonishing sight to see a Duralumin "plank" being sawn to plan form in a band saw, but this is actually done, and without any apparent difficulty. The "plank" is first tapered in thickness from centre to tips, and the blade plan form then marked on it. It is then put into a machine and bent to the desired pitch angle. This operation is illustrated in one of our photographs. The "Winding sticks," to borrow a wood-working term, are sighted along each other and when parallel the desired angle has been reached. The propeller is then placed in a third machine in which a circular saw, placed at an angle with the blade and travelling on a carriage, cuts the blade roughly to the desired section, the feed of the saw being governed by templates representing the section at any radius. After leaving the saw the propeller is finished off by a large power-driven buff. In quantities the manufacture of the Fairey-Reed Duralumin airscrews should be a relatively simple matter, and in spite of the fairly high cost of the metal should be capable of being manufactured at a cost not greatly in excess of that of a wooden airscrew. That the propeller is very effective for certain types of aircraft cannot be doubted, and it may be recalled that the present holder of the world's speed record, the Bernard "Ferbois," which did 280 m.p.h.,



SOME INTERESTING DETAILS ON THE FAIREY "FLYCATCHER": 1, the pilot's cockpit is provided with sliding panels working in grooves and locked in any position by the spring catches shown in 2. In 3 are shown the rudder pedals, which are adjustable to suit pilots of different height. 4 shows the tail-skid assembly of the "Flycatcher." Rubber discs, working in compression provide the springing. Details are given in 5, 6, and 7.

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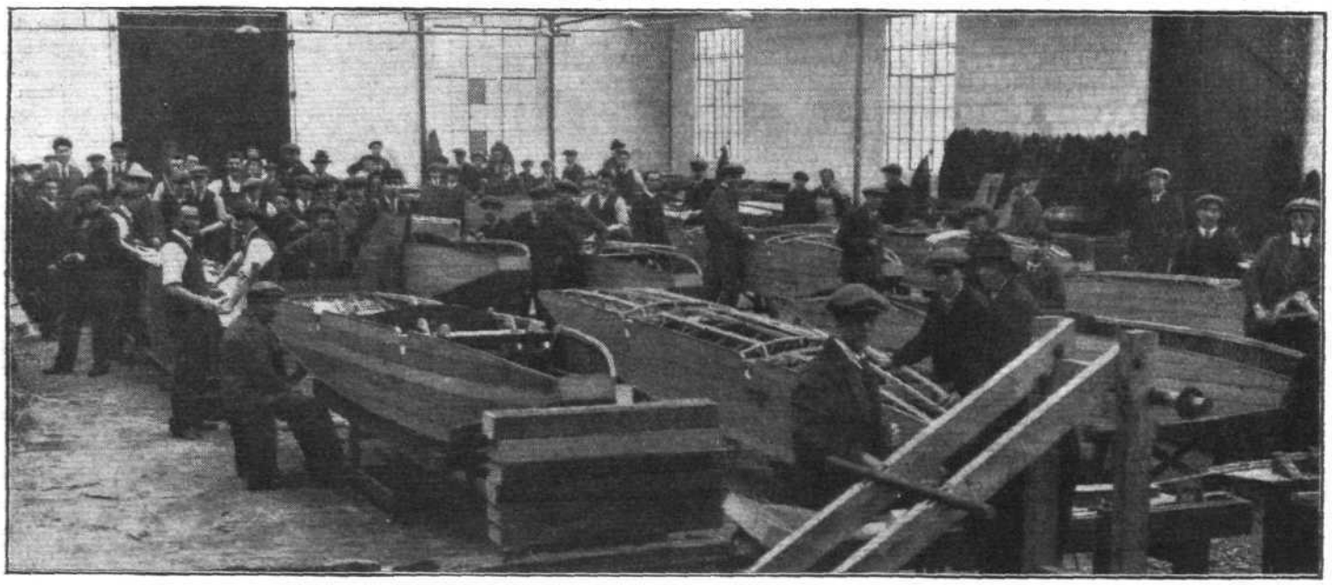


AT THE FAIREY WORKS: A corner of the new experimental shop is at present being used for float-building. All Fairey floats are now boat-built of two skins of mahogany. No three-ply is used.

was fitted with a Levasseur-Reed Duralumin airscrew. Incidentally it may be mentioned that the Gloucestershire racing seaplane which was to have competed in the Schneider race in America was fitted with a Fairey-Reed propeller, and that we saw it at the works, apparently none the worse for its submersion after the crash of that machine.

Concerning the Fairey machines themselves nothing may be said at present, but accompanying these notes are a few sketches and photographs which show certain interesting constructional features, and a detailed description of the "Flycatcher" must be deferred to another occasion. Suffice it to recall that this machine is produced both as a land machine, fitted with the Fairey oleo-pneumatic undercarriage, and as an amphibian float seaplane, with the wheels built into the bottom of the floats, in which latter form the machine has been seen at Croydon.

AERONAUTICAL RESEARCH COMMITTEE REPORTS

Summaries to be Published in "FLIGHT"

FROM the number of enquiries we receive it appears that there is a desire in aircraft circles to know approximately the contents of the various technical publications of the Aeronautical Research Committee. All the aircraft firms probably receive these reports regularly, whether or not they contain anything of immediate interest or utility. In the case of draughtsmen, however, and others interested in aeronautics who cannot afford to purchase all the reports, the problem of deciding whether any publication interests him is often a difficult one. As it is obviously desirable that the knowledge of aeronautics should be made available to all who take an interest in the subject, we have arranged with the Air Ministry to publish in FLIGHT summaries of all the technical publications as soon as these are issued, or shortly before they are published. All A.R.C. publications can be purchased from H.M. Stationery Offices at Adastral House, Kingsway, London, W.C.2; 28, Abingdon Street, London, S.W.1; York Street, Manchester; 1, St. Andrew's Crescent, Cardiff; 120, George Street, Edinburgh, and through any bookseller.

Reports and Memoranda, No. 916 (Ae. 142). Slot Control on an Avro with Standard and Balanced Ailerons. By F. B. Bradfield. Price 1s. net.

The effect of a slotted leading edge used in conjunction with ailerons was investigated with a view to improving the control when stalled.

In order to obtain an estimate of the efficiency of the control, rolling and yawing moments were measured both with standard unbalanced and with balanced ailerons, for a range of slot openings, and hinge moments were measured both for the auxiliary aerofoil which forms the leading edge and for the balanced ailerons.

The results indicate that at, and above, stalling a large increase in rolling moment may be obtained by the use of combined slot and aileron control, the yawing moment being reduced, and in some cases reversed in sign. (Slot and aileron controls are not additive, and the slot alone is ineffective up to 20 deg. incidence.) The use of balanced ailerons will allow large aileron angles to be used at stalling, thus using the slots to the best advantage, and from the results it would appear that the device should be of considerable value as control at low speeds is improved greatly if rolling moments can be put on a machine without the usually accompanying yawing moment.

It is understood that a design for full scale experiment is in hand, and that further model work on an Avro biplane using the rolling balance is contemplated.

Reports and Memoranda, No. 923. (M. 27.) Cold Work and Fatigue. By L. Aitchison, D.Met., B.Sc., F.I.C. Price 3*d*. net.

Gough and Hanson have stated elsewhere certain opinions (*a*) that slipping within a crystal is unidirectional in fatigue as in static loading, (*b*) that as a result of slip at one position in a crystal the metal in and about the plane of slip is hardened to an extent sufficient to resist any immediate further slipping.

It was desired to investigate these opinions by fatigue experiments, and the present experiments have been mainly directed towards measuring the increase of hardness or strength in the metals, as a result of fatigue.

The specimens—various steels, brass and copper—investigated had been run in the Haigh machine for an extended time, some to fracture and some for several million cycles; and their Brinell number was determined for both the butt end and the parallel portion.

The results obtained were not sufficiently regular to give a thoroughly reliable result, but the indications all point in the expected direction, namely, that the value of n falls due to fatigue stressing.

The results also appear to indicate that the effect of fatigue stresses upon metals does not differ widely from that of other stresses. In general, it would seem that the fatigue strength of a material is controlled by its capacity for cold work.

FLIGHT

THE ROYAL AIR FORCE

London Gazette, January 20, 1925

[General Duties Branch

The following Cadets are granted permanent commissions as Pilot Officers, having successfully passed through the R.A.F. Cadet College, with effect from, and with seniority of, December 17, 1924 :—A. H. W. J. Cocks, G. B. Beardsworth, J. H. M. Campbell, N. S. Allinson, S. H. Hardy, G. R. Beamish, G. W. Hayes, S. H. V. Harris, I. M. Scott, A. H. Montgomery, P. R. Gardner, Earl of Bandon, J. G. Franks, J. R. Addams, R. J. A. Ford, M. E. de L. Hayes, P. M. Terry, G. F. G. Cox. The following are granted permanent commissions as Flight Lieuts. (Jan. 21) :—O. E. Carter, R. J. Divers, M.B.E.

The following are granted temporary commissions as Flying Officers on attachment to the R.A.F. for four years (Jan. 12) :—Lieuts., R.N.—L. C. Sharman, T. O. Bulteel, R. J. Berry, A. N. Grey, K. A. B. Hutson, P. J. Fitzgerald, R. C. Allen, A. P. Colthurst, D. B. Morgan, J. N. Sparks, R. A. Aldridge, G. F. Renwick, R. H. Langton, E. W. E. Lane, J. W. M. Healing, F. G. Wynne, T. H. Villiers, G. H. Birley, A. A. Murray, J. E. Vallance, and F. H. G. Oliphant. Sub-Lieuts., R.N.—E. O. F. Price and G. Willoughby. Mate, R.N.—J. Ryan. Lieuts., R.M.—R. H. S. Teek, A. B. Woodhall, C. J. Fell, T. L. G. Bryan, C. F. L. Holford, and O. C. Jones.

The following Pilot Officers are promoted to the rank of Flying Officer :—R. H. Giles ; Dec. 14, 1924. R. H. Bibby ; Jan. 14. Flight Lieut. L. W. Jarvis is restored to full pay from half-pay ; Dec. 29, 1924. Flying Officer H. A. Mullaly (Lieut., Indian Army, retired) is cashiered the service by sentence of General Court Martial ; Jan. 8. Flying Officer C. P. Wingfield relinquishes his short-service commission on account of ill-health and is permitted to retain his rank ; Jan. 21. Pilot Officer G. D. Hamilton resigns his short-service commission ; Jan. 14. The short-service commissions of the following Pilot Officers on probation are terminated on cessation of duty :—A. J. McKellar ; Jan. 10. K. W. James ; Jan. 21. The following Flying Officers relinquish their temporary commissions on return to Army duty :—H. A. R. Puttee ; Jan. 15. A. S. Godley ; Jan. 17.

Stores Branch

Flight Lieut. G. C. Anne, O.B.E. (Capt., K.O.Y. Light Infantry), is granted a permanent commission ; Jan. 21. The seniority of Flying Officer R. V. Robinson, O.B.E., is April 1, 1918, not as *Gazette*, April 29, 1924.

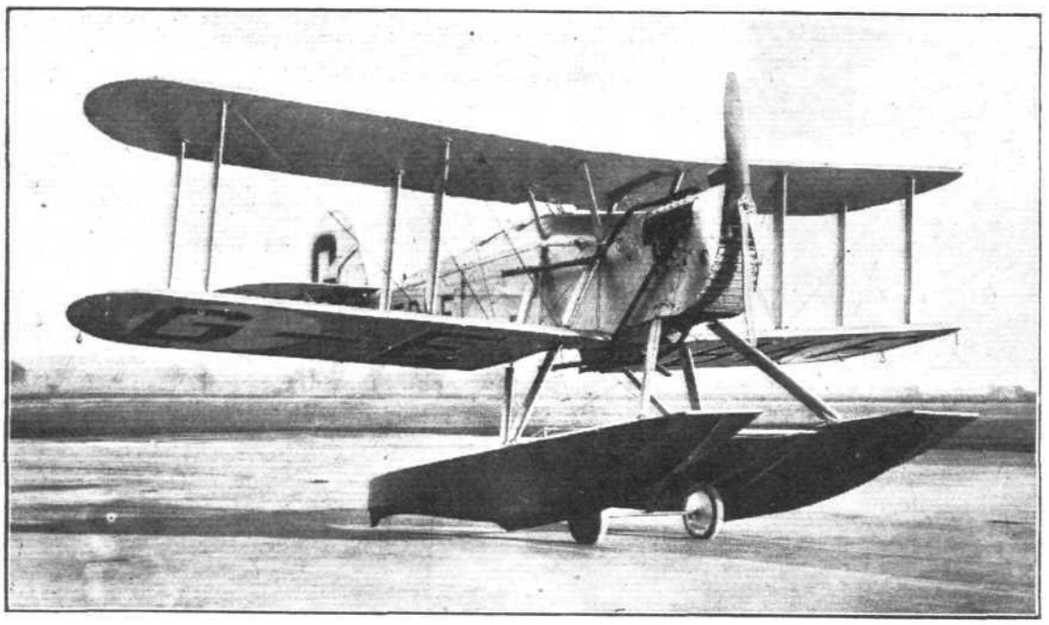
Medical Branch

J. M. Kilpatrick, M.B., is granted a short-service commission as a Flying Officer, with effect from, and with seniority of, Jan. 7. Lieut. V. P. Ellis, L.D.S., Dental Surgeon, General List, Army, is granted a temporary commission as a Flying Officer on attachment to R.A.F. ; Jan. 8. He will receive his emoluments from Army funds. Flying Officer W. B. Stott is transferred to Reserve, Class D 2 ; Jan. 15.

Reserve of Air Force Officers

The following are granted commissions on probation in General Duties Branch in ranks stated (Jan. 20) :—Class A.—Flying Officer A. H. P. Pehrson, Pilot Officer A. B. H. Youell. Class B.—Flying Officer Lord E. A. Grosvenor, Pilot Officer A. A. C. Nelson Smith.

Major the Hon. M. Baring, O.B.E., is granted an hon. commission as a Wing Commander ; Jan. 20. The following Flying Officers are promoted to the rank of Flight Lieut. (Jan. 20) :—F. F. Minchin, C.B.E., D.S.O., M.C., C. H. R. Johnston, H. G. Brackley, D.S.O., D.F.C., G. L. Hunting. Flying Officer C. H. Howitt is transferred from Class A to Class B (Nov. 25, 1924) (substituted for *Gazette*, Nov. 25, 1924) ; Flying Officer J. E. L. Skelton is transferred from Class A to Class C (Jan. 16) ; Flight Lieut. J. O. Dickson, D.F.C., is transferred from Class A to Class C (Jan. 15).



A New Blackburn : Three-quarter front view of the school seaplane, fitted with Napier "Lion" engine, which was flown very successfully recently.

Side view of the Blackburn school seaplane. Note the back-swept wings.

CROYDON DISASTER INQUIRY

THE official public inquiry into the Croydon air disaster was opened at the Law Courts, before an independent chairman (Sir Arthur Colefax) and two assessors (Prof. B. M. Jones, A.F.C., and Mr. J. Swinburne, F.R.S., M.Inst.C.E.), on January 23. Mr. Trevor Watson, for the Air Ministry, first described in detail the regulations governing inquiries into air accidents, and then gave particulars of the granting of airworthiness certificates, with special reference to the machine involved (D.H. 34 G-EBBX), which, he stated, was re-certified on November 18 last. After outlining the movements of G-EBBX just prior to the accident, Mr. Watson dealt with Croydon Aerodrome and its regulations, all of which he said had been complied with, and described the start, etc., of the machine on the occasion of the ill-fated flight. Referring to Major Cooper's examination of the wreckage, Mr. Watson stated that this examination led to the conclusion that there was no mechanical defect in the engine during the flight, and that the lubricating system was working properly. He further made the following important statement :—

" One definite fact did emerge from the inspection, and that was that the petrol pipe lining of the petrol pipe which supplies petrol to the carburettor was blocked or partially blocked. The blockage in that pipe is due to swelling and distortion on the inside lining. This is a condition which might have been proved to be due to the aftermath of the accident, but it is notable that the outside covering of that particular piece of pipe does not seem to have been affected by the fire at all, and that the swelling on the underneath part of that pipe is most marked at the point where the outer canvas casing is not burned."

Major Cooper (Inspector of Accidents, Air Ministry) gave evidence on this and other matters. In his evidence on January 24 Major Cooper said that his own conclusions were that engine trouble was experienced very soon after leaving the ground, and that the pilot first headed towards the golf links to land, and then, not having sufficient height to clear the trees, made a desperate effort to turn back very abruptly to the aerodrome. He was, however, at such a low height, and engine trouble was so acute, that he decided to land on the piece of open ground directly into the wind. In manœuvring the machine to do so, it lost flying speed at from 50 to 100 ft. and nose-dived into the ground. In answer to a question, Major Cooper said that, in his opinion, a slight overload, under the circumstances, would not have been a contributory cause of the accident. Evidence was also given to the effect that Captain Hinchcliff, who had previously flown the machine, had reported that the engine was " rough." The Inquiry was resumed on January 27, a report on which will appear in next week's issue of FLIGHT.

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French Saharan Flight

THE De Goys mission, which, as fully reported in last week's FLIGHT, is flying in two four-engined Blériot biplanes—" Roland Garros," piloted by Capt. Pelletier d'Oisy, and " Jean Casale," piloted by Colonel Vuillemin—from Paris, across the Sahara, to Lake Chad and Bangi (or Bangui), and back, is now well on its way. They left Paris at 11.45 a.m. on January 18 and landed at Avord at 1.30 p.m., but were unable to resume their journey, owing to fog, until January 21. Avord was left at 11.59 a.m. and Perpignan was reached at 4.40 p.m., but once again they were held up by bad weather. The 700-mile journey from Perpignan, across the Mediterranean, to Oran was started at 7.20 a.m. on January 23, and was safely accomplished in 10 hrs. 25 mins. They did not land at Alicante, as originally planned, but, it is reported, descended at Carthagena for petrol. From Oran they resumed their journey at 10.55 a.m. on January 25, and arrived at Colomb Béchar at 3.30 p.m.

Cobham to Fly Over Everest

WE wonder if it is by way of passing the time, pending Sir Sefton Brancker's convalescence, that Mr. Alan Cobham proposes, according to the Calcutta *Statesman*, to reconnoitre Mount Everest from the air? Cobham has flown from Calcutta to Darjeeling, the base from which the Everest expeditions start, with this object in view. Sir Sefton is making good progress, and hopes shortly to resume his flight to Rangoon.

R.A.F. at Delhi Review

AT the Viceregal Review of the troops assembled at Delhi, which, under the command of Lieut.-Gen. Sir G. Barrow, G.O.C. in C. Eastern Command, was held on January 21, the R.A.F. took an active part for the first time at an Indian review. The Viceroy, who took the salute, was accompanied by General Lord Rawlinson, Commander-in-Chief, and Air Vice-Marshal Sir Edward Ellington, Air Officer Commanding R.A.F. in India. In addition to the march past of troops, artillery, armoured cars, and tanks, a squadron of nine aeroplanes flew past in single file, dipping in salute, and then flew over the parade ground in formation.

Lisbon-Portuguese Guinea Flight

Two Portuguese aviators, Capt. Pinheizo Correio and Lieut. Sergio de Silva, will attempt a flight from Lisbon to Portuguese Guinea, a distance of 2,500 miles, in March next.

" The British Aviation Mission to Japan "

ON January 21 Colonel the Master of Sempill, R.A.F., gave a lecture before the members of the Japan Society, Baron Hayashi, Japanese Ambassador, presiding. In the course of his address Colonel Sempill said that there was every reason to believe that an airship service between London and Tokio would be inaugurated in the very near future. Rigid airships, about 700 ft. long and carrying from 50 to 100 passengers, would be employed on this service, and would in the summer fly *via* Scotland, Norway, and Russia—a distance of nearly 5,000 miles—taking about four days, during only one of which would darkness be experienced.

Bombing Tests on H.M.S. " Monarch "

AIRCRAFT took part, in company with light cruisers and battleships, in the sinking of H.M.S. *Monarch* off the Scilly Isles on January 20.

New U.S. Aircraft Carriers

ON January 24 the U.S. House of Representatives adopted a Bill authorising the amount to be expended upon the two new aircraft carriers—" Lexington " and " Saratoga " —to be increased from $23 million to $34 million each. The Bill has now to go before the Senate.

London-Berlin Air Mail

THE Postmaster-General announces that the letter air mail service to Hanover, Hamburg and Berlin has been temporarily suspended. The air mails to Germany *via* Cologne and to Holland are being maintained.

The Supermarine " Southampton."

WHEN it became known that a new series of flying boats being built by the Supermarine Aviation Works, Ltd., for the Air Ministry were to be given the class name of " Southampton," the Borough Council of that important town had the happy idea of presenting silver and enamel name plates to be fixed on the bows of each machine of this class.

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